BASEMENT & ROOM FINISH

RESIDENTIAL

BUILDING INSPECTIONS DEPARTMENT

www.ci.blaine.mn.us

This handout is intended only as a guide and is based in part on the 2015 Minnesota State Building Code, Blaine city ordinances, and good building practice. While every attempt has been made to insure the correctness of this handout, no guarantees are made to its accuracy or completeness. Responsibility for compliance with applicable codes and ordinances falls on the owner or contractor. For specific questions regarding code requirements, refer to the applicable codes or contact the City of Blaine, Building Department.

PERMITS AND PLANS

Building permits are required if you are finishing unfinished space in your basement, changing the use of space such as converting a recreation room to a bedroom, and for some repairs. **If you hire a general contractor, they are required to obtain the required permits.**

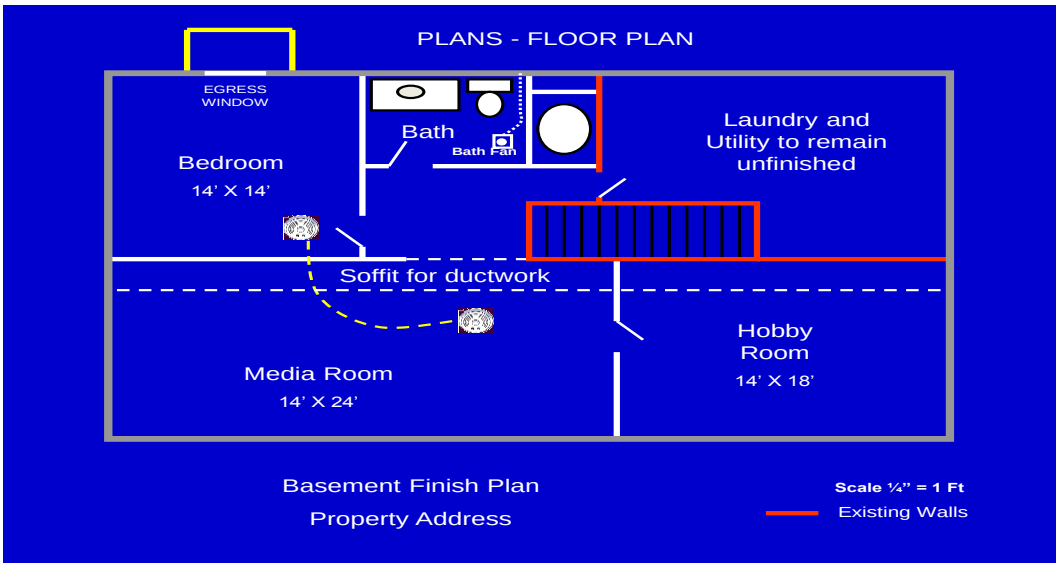
Plans are required for any finishing or change of use. Plans should be neat scale drawings that include a floor plan, window sizes and locations, cross sections, and any notes that would help explain the nature and extent of your project. Once submitted, it takes about 5 working days before your permit will be ready so please submit your, complete detailed, plans and permit application well in advance of the date when work will begin. **NOTE: If the plans and details are not complete or information is missing the time to process your permit will be extended.**

Inspections are required of all work. When your permit is issued, you will receive an inspection record card that will tell you which inspections to call for and the number to call. Inspections are made by appointment. Requests for inspections should be made at least 24 hours in advance.

REQUIRED PERMITS

- Whether a contractor is hired to complete the project or you as the homeowner are taking on the role of General Contractor - the City of Blaine Basement Finish Permit includes basic building, plumbing and mechanical work. Mechanical and Plumbing Contractors shall be listed on the application and licensed with the City of Blaine or the State of Minnesota.
- If the owner is to complete the plumbing they must also occupy the dwelling.
- Electrical Permit must be obtained through the State of MN.
- Basement Finish permit fees are not based on valuation. They are flat fees based on how many rooms are being finished
- Installation of a gas fireplace is an additional charge and/or permit.
- If your basement project includes replacing, adding, or changing opening size of any windows – a separate window permit will be required.
- If your house is equipped with fire sprinklers, design alterations will require a design and separate permit.

EXAMPLE FLOOR PLAN



GENERAL CODE INFORMATION

- Ceiling heights in basements should be a minimum of 6'4".
- Stairway illumination is required.
- Bedrooms must be at least 70 square feet in area, not less than 7 feet in any horizontal dimension.
- Fireplaces and auxiliary heat sources may be installed in basements but must be installed in strict accordance with the manufacturer's written instructions.

GENERAL FRAMING INFORMATION

- Non-bearing wood framed walls may be 2X4 studs at 16 or 24 inches on center. Walls must have a bottom plate and at least a single top plate. Plates in contact with concrete floors must be treated wood, redwood, or cedar. For stud size and spacing for bearing walls, contact the Building Department. Wood used for framing soffits may be 2X material.
- Headers in non-bearing walls may consist of a 2X4 laid flat for openings up to 8 feet wide. No cripples or blocking are required above the header provided the distance from the header to the floor joist above is not more than 24 inches..
- Do not remove any existing partitions unless you have determined that they are not load bearing partitions. If any portion of a load bearing partition is to be removed or altered, a header or beam must be installed to transfer the load to a footing; detailed information of load bearing wall changes must be included with your application for permit and prior approval from the building department is be required.
- *Treated* wood furring strips not less than 1X2 inches may be attached directly to the interior of exterior masonry or concrete walls below grade or untreated strips may be used if an approved vapor retarder is installed between the wall and the furring strips.
- Wood veneer paneling must be placed on wood framing spaced not more than 16 inches on center. Wood veneer paneling less than ¼ inch nominal thickness must have not less than a 3/8 inch gypsum board backer.

DRILLING AND NOTCHING OF FRAMING MEMBERS

- Drilling and notching of open web trusses, laminated veneer lumber (LVL) beams is not permitted without an approved design from the manufacturer or a structural engineer.
- Drilling and notching of I-joists is permitted in accordance with the manufacturers written installation instructions. You should obtain a copy of these instructions before starting any work. The Building Department has a handout on Cutting, Notching and Boring framing members that should be used as a guide for repairs.
- When piping or ductwork is placed in or partly in an exterior wall or interior load bearing wall, and a notch that is greater than 50% of the top plate width a galvanized metal tie not less than .054 inch thick and 1 ½ inches wide shall be fastened across the opening. The tie shall extend a minimum of 6" beyond the opening on each side and each side shall be fastened with not less than 8 – 10d – 1 ½" nails. R602.6.1

PLUMBING CODE MN 4714

- The current Minnesota plumbing code can be viewed at the following website or purchased through the MN bookstore. http://www.iapmo.org/Pages/MinnesotaPlumbingCode.aspx
- PVC (white) & ABS (black) plumbing pipes may not be glued together. If attachment from PVC to ABS is necessary it must be done so by approved transition couplings.
- Plastic drain, waste, and vent piping shall be minimum schedule 40.
- Water supply sizing is based on fixture units, water pressure, and the total length of water supply run. For a typical bathroom with one or two sinks, one tub or shower, and one toilet – no more than 2 fixtures shall be supplied with a ½" supply; therefore, ¾" piping shall be supplied to the bathroom group with ½" branches from this supply.
- Toilets must be installed in a space at least 30 inches wide (minimum 15" from center of toilet to finished wall or surface) and at least 24 inches of clear space must be provided in front of the toilet bowl.
- Shower compartments shall have minimum 1024 square inches and be capable of encompassing a 30 inch circle.
- Shower receptors built on site shall be tested for water tightness.
    - See MN Plumbing Code IAPMO IS 4-2006 for installation standards
- Factory installed tile flange is required when a bathtub is to be placed against any wall.
- Anti-scald control devices - combination tub/shower and shower valve must be of the thermostatic, pressure-balancing, or combination thermostatic and pressure-balancing type in accordance with ASSE Standard 1016.
- Where plumbing fixtures come in contact with the wall or floor, the joint between the fixture and the wall or floor shall be sealed.
- All plumbing clean-outs, traps, and valves shall remain accessible.
- Concealed trap used under a shower must be an all glue type trap.
- All pipes passing through framing members within 1" of the exposed framing shall be protected by a steel plate not less than No. 18 gage in thickness. The steel nail plate shall extend along the framing member not less than 1 ½" beyond the outside diameter of the pipe or tubing.
- New hot water supply piping that is ½" running 20' or more, and 3/4" running 10' or more, is to be insulated to an R-3.

MECHANICAL CODE MN 1346

- Bathrooms must be provided with ventilation via a window with at least 1.5 square feet of open area or a mechanical exhaust fan with a minimum rating of 50 cfm. Flexible duct is permitted; however, rigid metal duct creates much less resistance to air flow and will improve the efficiency of your bath fan. The bath fan exhaust duct shall be insulated to a minimum R3.3 for a minimum 3 feet from exterior wall. The exhaust outlet must be at least 3 feet from all operable doors, windows, and 10 feet from all mechanical air intakes.
- Each habitable room shall have heat supply and cold return air.
- **New supply ducts to be sealed with an approved mastic sealant or UL-181 listed tape at duct seams.**
- **Heat supplies and cold air returns shall all be ducted. Building cavities shall not be used for return air or as ducts.**

COMBUSTION AIR FOR FURNACES AND WATER HEATERS

- If you are enclosing the space housing your furnace and/or water heater, you may need to provide additional combustion air by installing an exterior combustion air duct or providing transfer openings in the enclosing walls or doors.

INSULATION

- Houses built prior to June 1st 2009, that has either interior or exterior foundation insulation, adding additional foundation insulation is not recommended (could cause moisture issues).
- For houses built after June 1st 2009, existing foundation insulation details shall be included on your plan, along with any additional planned insulation.
- All rigid foam board insulation must be covered with ½ -inch gypsum board unless the foam plastic is approved for use without the covering.

SMOKE ALARMS

- Alarms must be located in each bedroom and on each floor of the dwelling including the basement. Alarms must be installed in accordance with the manufacturers written instructions. Where framing is exposed, alarms must be hard wired with a battery backup and must be interconnected with other hardwired alarms. When framing is not exposed or it is not feasible to hardwire a smoke alarm, battery powered detectors may be used. Interconnection can also be achieved with a wireless system.

CARBON MONOXIDE ALARMS

- Every single family dwelling and every multifamily dwelling unit shall be provided with a minimum of one approved and fully operational carbon monoxide alarm installed outside of but within ten (10) feet of each room lawfully used for sleeping purposes. If bedrooms are located on separate floors additional carbon monoxide alarms would be necessary outside of but within ten feet of these areas. If bedrooms are located in separate areas (on the same level), additional carbon monoxide alarms are required outside of but within ten (10) feet of these sleeping rooms. It is important that these devices be installed in accordance with the manufacturer's installation instructions and not be placed in 'dead' air pockets such as

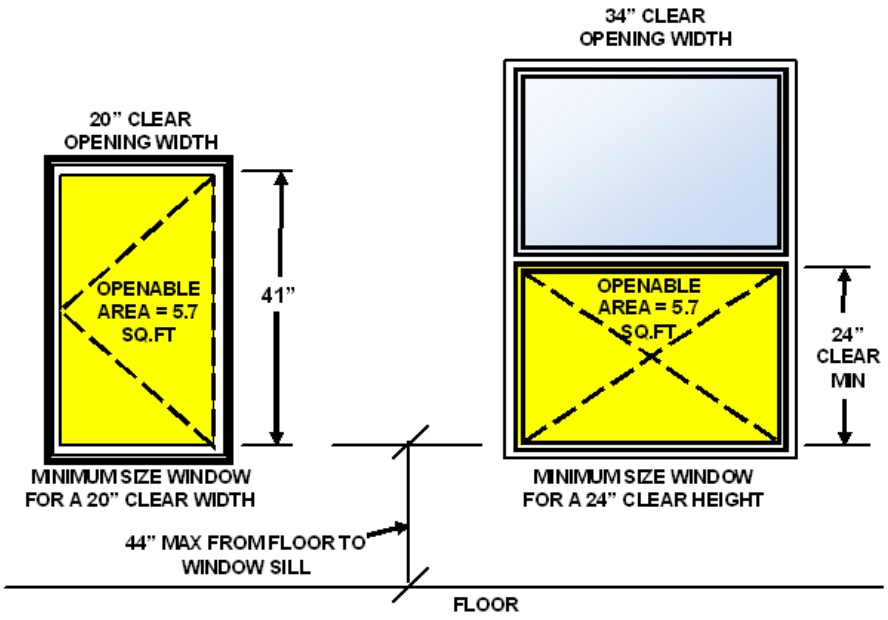
corners of rooms, at the junction of walls and ceilings or within thirty-six (36) inches of ventilation ducts.

EMERGENCY ESCAPE AND RESCUE OPENINGS

- Emergency escape and rescue openings are required in any room used for sleeping purposes (bedrooms) and in basements. If you are constructing a new home, the code requires that you put an emergency escape and rescue opening in each bedroom. It also requires one in the basement.
- In existing homes, you must provide an emergency escape and rescue opening if you create a new bedroom or expand an existing bedroom or your basement. If you have a bedroom in the basement, the emergency escape and rescue opening in that bedroom suffices for the basement. In this case you would not need to provide another opening just for the basement.
- A window used as an emergency escape and rescue opening must satisfy all four of the Minnesota Residential Code requirements:
  1) Minimum width of opening: 20 in.
  2) Minimum height of opening: 24 in.
  3) Minimum net clear opening: 5.7 sq. ft. (5.0 sq. ft. for ground floor).
  4) Maximum sill height above floor: 44 in.
- The window must have a minimum net clear opening of 5.7 sq. ft. Net clear opening refers to the actual free and clear space that exists when the window is open. It is not the rough opening size or the glass panel size, but the actual opening a person can crawl through.
- The window opening must be operational from the inside without keys or tools. Bars, grilles and grates may be installed over windows but must be operational without tools or keys and still allow the minimum clear opening.

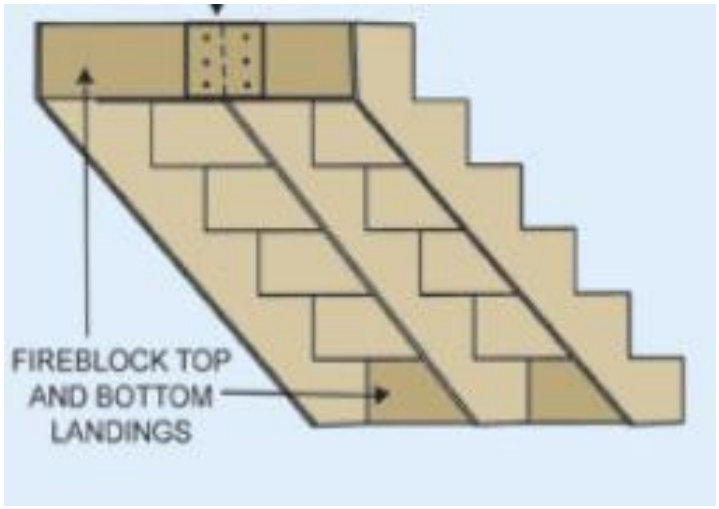
Do the math

- At first glance, you might assume that a 20-in. by 24-in. window would be acceptable for emergency escape or rescue. However, those dimensions would yield a net clear opening of only 3.3 sq. ft. To achieve the required net clear opening of 5.7 sq. ft., a 20-in. wide window would have to be 42 in. high. Likewise, a 24-in. high window would have to be 34 in. wide.



IMPORTANT NOTE: Verify existing egress windows are operable – prior to final inspection

FIREBLOCKING is intended to block the spread of fire from one *concealed* space to another.



- Fireblocking shall be installed and inspected as part of the framing or insulation inspection. Improper fireblocking is a common reason for inspection failure. Fireblocking is required and shall be installed as listed below prior to the installation of any wall covering material.

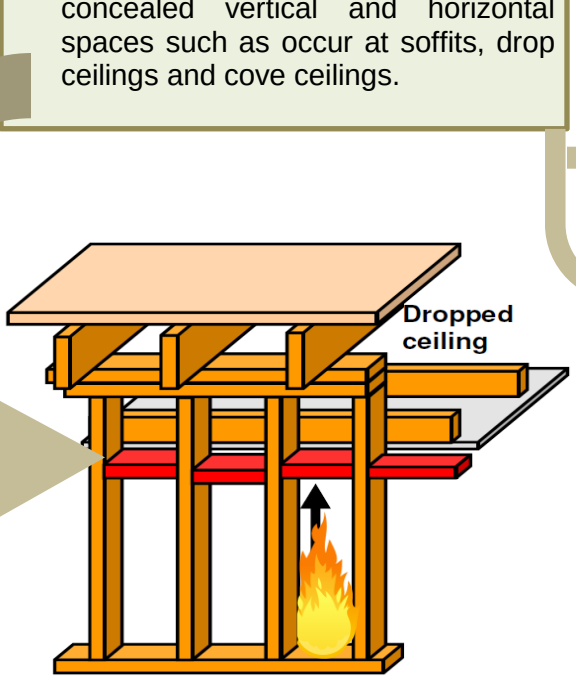
- **R302.11 Fireblocking**: In combustible construction, fireblocking shall be provided to cut off all concealed draft openings (both vertical and horizontal) and to form an effective fire barrier between stories, and between a top story and the roof space. Fireblocking shall be
- provided in wood-frame construction in the following locations:

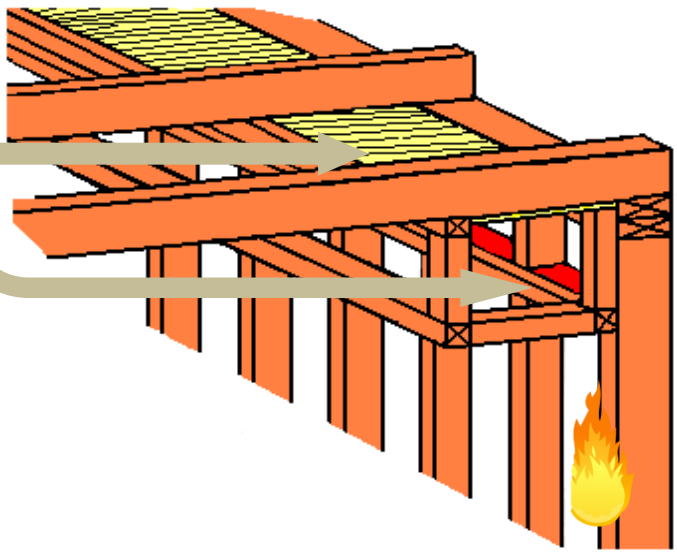
1. In concealed spaces of stud walls and partitions, including furred spaces (open space between foundation wall and framed wall) and parallel rows of studs or staggered studs, as follows:

1.1.1. Vertically at the ceiling and floor levels.

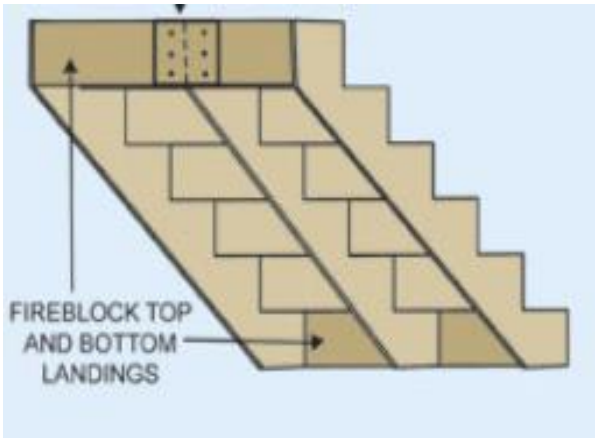
1.1.2. Horizontally at intervals not exceeding 10 feet

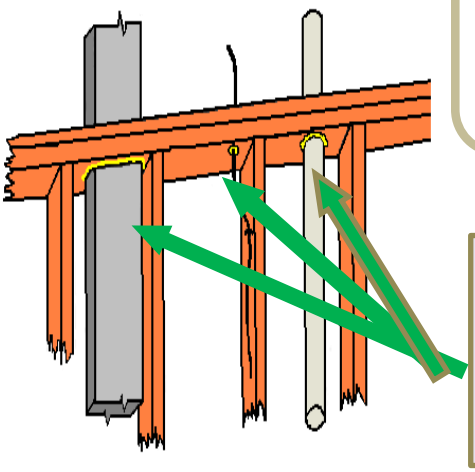
2. At all interconnections between concealed vertical and horizontal spaces such as occur at soffits, drop ceilings and cove ceilings.





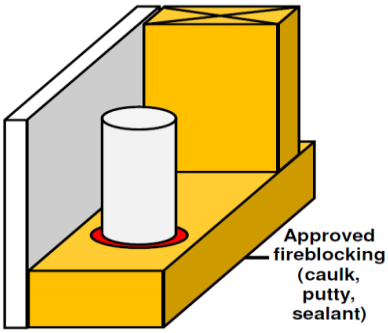
3. In concealed spaces between stair stringers at the top and bottom of the run. Enclosed spaces under stairs shall comply with Section R302.7.





4. At openings around vents, pipes, ducts, cables and wires at ceiling and floor level, with an approved material to resist the free passage of flame and products of combustion. The material filling this annular space shall not be required to meet the ASTM E 136 requirements.

5. For the fireblocking of chimneys and fireplaces, see Section R1003.19.
6. Fireblocking of cornices of a two-family dwelling is required at the line of dwelling unit separation.



- **R302.11.1 Fireblocking materials**. Except as provided in Section R302.11, Item 4, fireblocking shall consist of the following materials.
  1. Two-inch (51 mm) nominal lumber.
  2. Two thicknesses of 1-inch (25.4 mm) nominal lumber with broken lap joints.
  3. One thickness of 23/32-inch (18.3 mm) wood structural panels with joints backed by 23/32-inch (18.3 mm) wood structural panels.
  4. One thickness of 3/4-inch (19.1 mm) particleboard with joints backed by 3/4-inch (19.1 mm) particleboard.
  5. One-half-inch (12.7 mm) gypsum board.
  6. One-quarter-inch (6.4 mm) cement-based millboard.
  7. Batts or blankets of mineral wool or glass fiber or other approved materials installed in such a manner as to be securely retained in place. Fireblocking should be installed and inspected as part of the framing or insulation inspection.

- **302.11.1.2 Unfaced fiberglass** batt insulation used as *fireblocking* shall fill the entire cross section of the wall cavity to a minimum height of 16 inches (406 mm) measured vertically. When piping, conduit or similar obstructions are encountered, the insulation shall be packed tightly around the obstruction.

Other materials such as caulking or spray foams shall be non-combustible.

INSPECTIONS

Fireblocking is typically inspected at the time of the insulation inspection and should be complete at that time.